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Job No.: CTCE/BBMP/W.No.14/SGA/CEMENT/2014-15 Date: 10.05.2014

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. S.G. Anilkumar** Contractor, Bangalore.
*NAME OF THE WORK	:	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
*REFERENCE	:	EE/DD/WO/275/2013-14 Dated: 15.02.2014
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	09.05.2014
PERIOD OF TESTING	:	09.05.2014 to 10.05.2014

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	29.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	160 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	485 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/W.No.14/SGA/SAND-Gradation/2014-15 : 10.05.2014

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. S.G. Anilkumar** Contractor, Bangalore.

*** Name of Work** : Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.

Reference : EE/DD/WO/275/2013-14 Dated: 15.02.2014

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates

Sample Received on :09.05.2014

Date of Testing : 10.05.2014

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	95.50	90-100	90-100	90-100	95-100
2.36	78.00	60-95	75-100	85-100	95-100
1.18	58.00	30-70	55-90	75-100	90-100
600 Micron	25.60	15-34	35-59	60-79	80-100
300 Micron	10.30	5-20	8-30	12-40	15-50
150 Micron	1.80	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

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Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/W.No.14/SGA/AGG/GR/2014-15 : 10.05.2014

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. S.G. Anilkumar** Contractor, Bangalore.

*** Name of Work** : Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.

*** Reference** : EE/DD/WO/275/2013-14 Dated: 15.02.2014

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (20mm)

Sample Received on : 09.05.2014

Date of Testing : 10.05.2014

Total Wt. of Aggregates in gms= **5000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS :383-1970 (RA- 2007)	
		Graded	Single Sized
40	100	100	100
20	97.48	95-100	85-100
10	32.66	25-55	0-20
4.75	5.56	0-10	0-5

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.14/SGA/CUBE/2014-15 25.06.2014

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. S.G. Anilkumar** Contractor, Bangalore.

*** Name of the work** : Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.

*** Reference** : EE/DD/WO/275/2013-14 Dated: 15.02.2014

*** Sample ID** : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{15}

Compressive Strength as on : 28th day

Sample Received on : 25.06.2014

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	28.05.2014	25.06.2014	8.097	385.4	17.13
2	28.05.2014	25.06.2014	8.227	362.8	16.12
3	28.05.2014	25.06.2014	8.315	374.3	16.64

* Information is furnished by the Customer/Representative

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Job No.: CTCE/BBMP/W.No.14/SGA/Kerb stone/2014-15 16.05.2014

TEST REPORT ON CONCRETE CORE (KERB STONE)

* Customer	:	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. S.G. Anilkumar** Contractor, Bangalore.
* Name of Work	:	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Techinical Reference	:	IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample ID	:	Kerb Stone
Sample Received on	:	11.05.2014
Date of Testing	:	16.05.2014

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	81.00	0.399	2508.75	1.62	0.955	25.41	12.94	13.98	13.35	16.68
2	50.00	82.00	0.405	2515.42	1.64	0.960	26.59	13.54	14.63	14.04	17.55
3	50.00	83.00	0.415	2546.48	1.66	0.965	24.17	12.31	13.29	12.83	16.04

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Job No.: CTCE/BBMP/W.No.14/SGA/Pre Cast Slab/2014-15

16.05.2014

TEST REPORT ON CONCRETE CORE (PRE CAST SLAB)

* Name of Customer	:	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
* Name of Agency	:	**Mr. S.G. Anilkumar** Contractor, Bangalore.
* Name of work	:	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	:	EE/DD/WO/275/2013-14 Dated: 15.02.2014
Techinical Reference	:	IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample ID	:	Pre cast slab
Sample Received on	:	11.05.2014
Date of Testing	:	16.05.2014

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	82.00	0.410	2546.48	1.64	0.955	32.00	16.30	17.60	16.81	21.01
2	50.00	84.00	0.421	2552.54	1.68	0.960	32.50	16.55	17.88	17.16	21.45
3	50.00	81.00	0.399	2508.75	1.62	0.965	33.70	17.16	18.54	17.89	22.36

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Job No.: CTCE/BBMP/W.No.14/SGA/WMM/AIV/2014-15 28.05.2014

Aggregate Impact Value
IS: 2386 Part IV

Client	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. S.G. Anilkumar** Contractor, Bangalore.
Name of the Work	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	EE/DD/WO/275/2013-14 Dated: 15.02.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	28.05.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	301	
4	Aggregate Impact value = percent fines	20.63	20.79	
	100* (W_2/W_1)%			20.71

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.14/SGA/WMM/S-T/2014-15

28.05.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. S.G. Anilkumar** Contractor, Bangalore.
Name of Work	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	EE/DD/WO/275/2013-14 Dated: 15.02.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	28.05.2014

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.98%**

Elongation Index = **13.23%**

Result : Combined Flakiness & Elongation index **25.21%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.14/SGA/BUSG/Bitumen/2014-15

12.05.2014

BITUMEN CONTENT AND GRADATION DETERMINATION OF BUILT-UP SPRAY GROUT
As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. S.G. Anilkumar** Contractor, Bangalore.
NAME OF THE WORK	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
REFERENCE	EE/DD/WO/275/2013-14 Dated: 15.02.2014
SAMPLE I/D	1st and 2nd cross Road at Ashokanagar ward No.14.
DATE OF TESTING	12.05.2014

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476.5	476
3. Weight of Asphalt and Mineral matter Extracted, g	23.5	24
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	23.5	24.00
7. Bitumen content in %	4.70	4.80
8. Average	**4.75**	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
53	100.00	100.00	100
26.5	62.58	63.74	40-75
13.2	12.62	11.43	0-20
2.8	2.10	1.85	0-5

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CTCE/BBMP/WO/275/2013-14

16.05.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	Asst. Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
*AGENCY	:	M/s. S.G. Anilkumar Contractor, Bangalore.
*NAME OF THE WORK	:	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
REFERENCE	:	EE/T(D)/WO/275/2013-14 Dated: 15.02.2014
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	09.05.2014
DATE OF TESTING	:	10.05.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	IS :1203- 1978 (RA 2009)	86	80 to 100
2	Softening point, °C	IS :1205- 1978 (RA 2009)	47	Min. 40
3	Ductility at 27°C, cm	IS :1208- 1978 (RA 2009)	100 >	Min. 75
4	Flash Point, °C	IS :1209- 1978 (RA 2009)	302	Min. 220

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/W.No.14/SGA /SDBC/AIV/2014-15

24.06.2014

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. S.G. Anilkumar** Contractor, Bangalore.
Name of the Work	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	EE/DD/WO/275/2013-14 Dated: 15.02.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	24.06.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	77	78	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	20.32	20.53	20.42

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.14/SGA /SDBC/Shape_T/2014-15

: 24.06.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Mr. S.G. Anilkumar** Contractor, Bangalore.
Name of Work	: Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	: EE/DD/WO/275/2013-14 Dated: 15.02.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 24.06.2014

Result : Flakiness Index = **12.35%**

Elongation Index = **13.90%**

Result : Combined Flakiness & Elongation index **26.25%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.14/SGA /SDBC/Stripping/2015-16

25.06.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	Asst. Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	Mr. S.G. Anilkumar Contractor, Bangalore.
Name of the work	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	EE/DD/WO/275/2013-14 Dated: 15.02.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	25.06.2014

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.3	3.40	96.60
2	3.4		
3	3.5		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory

Þ The results indicated above are based on the tests carried out on the samples received in the laboratory

Þ Any Query regarding the report must be reported within 30 days from the date of testing.

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Lab No: CTCE/BBMP/WO/375/2013-14/Sp. Wt/2014-15

25.06.2014

Specific Gravity And Water Absorption Test

In Accordance With IS: 4386 Part III

Customer	Asst. Executive Engineer, T.Dasarahalli Sub Division, BBMP, Bangalore
Agency	M/s. S.G. Anilkumar Contractor, Bangalore
Name of the Work	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashoknagar in Nagalagunte in Ward No: 11, BBMP, Bangalore
Reference	EE/TDS/WO/375/2013-14 Dated: 15.02.2014
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	25.06.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2005	2004	2005	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) - W_3$ g	1248	1249	1250	
4	Weight of saturated surface dry aggregate in air	W_3 g	2018	2019	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_5)$ g	770	770	770	
6	Weight of oven dried aggregate	W_4 g	2010	1999	2000	
7	Specific Gravity	$W_4/(W_3 - W_5)$	2.610	2.596	2.597	2.601
8	Apparent Specific gravity	$W_4/(W_4 - W_5)$	2.638	2.665	2.667	2.657
9	Water Absorption	$((W_3 - W_4)*100)/W_4$	0.40%	1.00%	1.00%	0.80%

Comments:

- Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

Note:

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Job No.: CTCE/BBMP/W.No.14/SGA /SDBC/Stability/2014-15 25.06.2014

TEST REPORT ON STABILITY OF MIX

Customer	:	**Asst. Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Mr. S.G. Anilkumar** Contractor, Bangalore.
Name of the Work	:	Improvements to road, drain, footpath 1st and 2nd cross and cross roads at Ashokanagar in Bagalagunte in Ward No.14, BBMP, Bangalore.
Reference	:	EE/DD/WO/275/2013-14 Dated: 15.02.2014
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	25.06.2014

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	8.60	8.75	8.2 Kn (min)
2	Marshal flow, mm	3.05	3.20	2 – 4
3	Percent air voids in Mineral Aggregate	4.10	4.15	3 – 5
4	Voids in Compacted Mix	13.60	14.05	13 – 15
5	Percent Voids filled with Bitumen	66.80	69.35	65 - 78
6	Density, g/cc	2.26	2.27	--

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